

AMENDMENTS TO THE CLAIMS

Please amend the claims as indicated:

1 1. (currently amended) An apparatus for positioning of an object in at least one
2 plane comprising:

3 a holding member configured to hold the object to be positioned; and
4 a positioning system including a linkage coupled to the holding member, defining
5 a first joint thereat, with said first joint being coupled to a second joint through a plurality
6 of elongated members and a flexure joint, with said plurality of elongated members being
7 coupled to said flexure joint to move at substantially the same rate and in opposite
8 directions to facilitate movement of said holding member along first and second axes,
9 with the first axis extending transversely to the second axis[[],].
10

1 2. (previously presented) The apparatus of claim 1 wherein said plurality of
2 elongated members consists of a pair of elongated members.

1 3. (previously presented) The apparatus of claim 1 wherein each of said plurality of
2 elongated members is subjected to a pre-load.

4. (cancelled)

1 5. (previously presented) The apparatus of claim 1 wherein said plurality of
2 elongated members consists of a pair of elongated members coupled to said flexure

3 contact joint to allow rotation between said pair of elongated members through a
4 predetermined range of motion.

1 6. (previously presented) The apparatus of claim 1 wherein said plurality of
2 elongated members consists of a pair of elongated members coupled to said flexure joint
3 to allow rotation between said pair of elongated members through at least a 40 degree
4 range of motion.

7. (cancelled)

1 8. (previously presented) The apparatus of claim 1 wherein said positioning system
2 further includes an additional linkage having an additional plurality of elongated
3 members and an additional flexure joint with an additional plurality of elongated
4 members coupled to said additional flexure joint to move at substantially the same rate in
5 opposite directions.

9. (cancelled)

10. (cancelled)

1 11. (original) The apparatus of claim 1, further comprising at least one motive device
2 coupled to the holding member.

1 12. (original) The apparatus of claim 1, further comprising at least one motive device
2 coupled to the holding member, wherein each motive device comprises a magnetic linear
3 servomotor.

1 13. (original) The apparatus of claim 1, wherein the holding member comprises a
2 wafer chuck.

1 14. (original) The apparatus of claim 1, wherein the holding member is configured to
2 hold a semiconductor substrate.

1 15. (previously presented) The apparatus of claim 1 wherein each of the elongated
2 members of said plurality of elongated members has a common length.

1 16. (previously presented) The apparatus of claim 1 wherein said linkage is
2 configured to minimize kinematic singularities.

17. Claims 17-30 (cancelled)

1 31. (previously presented) An apparatus for positioning of an object along a first axis
2 and a second axis comprising:

3 a holding member configured to hold the object to be positioned;

4 a platform coupled to the holding member;

5 a first set of flexure linkages coupled to the platform, defining a plurality of first
6 joints thereat, with each of said first joints being coupled to a second joint through a first
7 pair of elongated members and a first flexure joint so as to facilitate movement of said
8 first pair of elongated members in opposing directions while facilitating movement of
9 said platform along a first axis;

10 a second set of flexure linkages coupled to the platform, said second set of flexure
11 linkages defining a plurality of third joints thereat, with each of said third joints being
12 coupled to a fourth joint through a second pair of elongated members and a second
13 flexure joint so as to facilitate movement of said second pair of elongated members in
14 opposing directions while facilitating movement of said platform along a second axis;

15 a first motive device coupled to the holding member, wherein the first motive
16 device is configured to move the holding member in relation to the platform along said
17 first axis; and

18 a second motive device coupled to the platform, wherein the second motive
19 device is configured to move the platform along said second axis.

1 32. (previously presented) The apparatus of claim 31 wherein said first pair of
2 elongated members has a first common length and said second pair of elongated
3 members has a second common length.

33. (cancelled)

34. (cancelled)

1 35. (previously presented) The apparatus of claim 31 wherein said first and second
2 linkages are each configured to minimize kinematic singularities.

36. (cancelled)

1 37. (previously presented) The apparatus of claim 31 wherein said first axis extends
2 transversely to said second axis.

1 38. (previously presented) The apparatus of claim 31 wherein said first and second
2 pairs of elongated members are subjected to pre-loading.

1 39. (previously presented) The apparatus of claim 31, wherein said first pair of
2 elongated members is coupled to said first flexure joint to allow rotation between said
3 first pair of elongated members through at least a 20 degree range of motion.

1 40. (previously presented) The apparatus of claim 31 wherein said first pair of
2 elongated members is coupled to said first flexure joint to allow rotation between said
3 first pair of elongated members through at least a 40 degree range of motion.

1 41. (previously presented) The apparatus of claim 31 wherein said second pair of
2 elongated members is coupled said second flexure joint to allow rotation between said
3 second pair of elongated members through at least a 20 degree range of motion.

1 42. (previously presented) The apparatus of claim 31 wherein said second pair of
2 elongated members is coupled to said second flexure joint to allow rotation between said
3 second pair of elongated members through a predetermined range of motion.

43. (cancelled)

44. (cancelled)

1 45. (original) The apparatus of claim 31, wherein the first motive device comprises a
2 magnetic linear servomotor.

1 46. (original) The apparatus of claim 31, wherein the second motive device
2 comprises a magnetic linear servomotor.

1 47. (original) The apparatus of claim 31, wherein the first and second motive devices
2 comprise magnetic linear servomotors.

1 48. (original) The apparatus of claim 31, wherein the holding member comprises a
2 wafer chuck.

1 49. (original) The apparatus of claim 31, wherein the holding member is configured
2 to hold a semiconductor substrate.

50. Claims 50-211 (cancelled)

1 212. (previously presented) An apparatus for positioning of an object in a plane, said
2 apparatus comprising:
3 a holding member retaining said object;
4 a linkage coupled to the holding member, defining a first joint thereat, with said
5 first joint being coupled to ground through a plurality of elongated members and a
6 flexure joint; and
7 a motive device coupled to the holding member for moving the holding member,
8 with said plurality of elongated members being coupled to said flexure joint to move in
9 opposite directions to facilitate movement of said holding member along an axis in
10 response to movement of said holding member by said motive device .

1 213. (previously presented) The apparatus of claim 212 further including an additional
2 linkage coupled to the holding member and including an additional plurality of elongated
3 members coupled to an additional flexure joint, with said additional plurality of
4 elongated members coupled to said additional flexure joint to move in opposite
5 directions to facilitate movement of said holding member along an additional axis.

1 214. (previously presented) The apparatus of claim 212 wherein each of said plurality
2 of elongated members are of a common length.

1 215. (previously presented) The apparatus of claim 213 wherein said axis extends
2 transversely to said additional axis.

1 216. (previously presented) The apparatus of claim 213 wherein said plurality of
2 elongated members consists of a pair of elongated members and said additional plurality
3 of elongated members consists of an additional pair of elongated members.

1 217. (previously presented) The apparatus of claim 216 wherein said linkage is
2 configured to allow rotation between said pair of elongated members through at least a 20
3 degree range of motion and said additional linkage is configured to allow rotation
4 between said additional pair of elongated members through at least a 20 degree range of
5 motion.

1 218. (previously presented) The apparatus of claim 216 wherein said linkage is
2 configured to allow rotation between said pair of elongated members through a 40 degree
3 range of motion and said additional linkage is configured to allow rotation between said
4 additional pair of elongated members through at least a 40 degree range of motion.

1 219. (previously presented) The apparatus of claim 216 wherein said pair of elongated
2 members and said additional pair of elongated members are pre-load.

1 220. (previously presented) The apparatus of claim 216 wherein said linkage is
2 configured to constrain the motion of said pair of elongated members to rotate at
3 substantially the same rate away from one another.

1 221. (previously presented) The apparatus of claim 220 wherein said additional linkage
2 is configured to constrain the motion of said additional pair of elongated members to
3 rotate at substantially the same rate away from one another.

222. (cancelled)

1 223. (previously presented) The apparatus of claim 212 wherein the motive device
2 comprises a magnetic linear servomotor.

1 224. (previously presented) The apparatus of claim 212 wherein the holding member
2 comprises a wafer chuck.

1 225. (previously presented) The apparatus of claim 212 wherein the holding member
2 is configured to hold a semiconductor wafer.

226. (cancelled)

227. (cancelled)